

## REMARKS

Claims 22-33 and 37 are pending in this application, claim 35 having been currently cancelled and claims 1-21 and 34, 36 and 38 having been previously cancelled.

Claims 22, 33 and 37 have been amended. Claims 22-33 and 37 are presented for reconsideration.

Applicants have amended their claims in order to more particularly point out and distinctly claim a preferred aspect of their invention wherein the OH is in the meta position with respect to the ether linkage in formula (1). Since claim 35 fails to further limit amended claim 22, it has been presently cancelled. No new matter has been added.

Claim 37 is rejected under 35 U.S.C. § 112, first and second paragraphs. Responsive thereto applicants add "is employed" at the end thereof.

It is respectfully submitted that all the claims submitted for reconsideration are in good formal order. Reconsideration and withdrawal of the rejection of claim 37 under 35 U.S.C. §112, first and second paragraphs is therefore solicited.

Claim 22 is rejected under 35 U.S.C. § 102(b) as being anticipated by Troesken et al., DE 25 38 016 A1. However, Troesken et al. is directed solely to diphenyl ethers wherein the phenolic OH is in the para position with respect to the ether linkage. See formula I. Hence there is clearly no anticipation of instant claim 22.

Claims 22-24, 33 and 37 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over Troesken et al., DE 25 38 016 A1. The examiner points to a broad generic scope of diphenyl ethers wherein the phenolic OH is in the para position on page 1 and to compounds 5 and 7 on page 3 and asserts that isomers and adjacent homologues of known compounds in a known method are *prima facie* obvious. However compound 5 on page 3 is not an isomer or adjacent homologue of any claimed compound since claimed R<sub>2</sub> cannot be alkoxy. Indeed there are multiple structural differences from the inventive 3-OH compounds in 35 of the 36 reference compounds, most of which are halogenated. There are also multiple structural differences from compound 7 on page 3 with regard to the inventive 3-OH compounds of claims 23, 24, and 37 since claimed R<sub>2</sub> therein cannot be

alkyl. Hence applicants aver that the narrow genus of compounds presently claimed is unsuggested by Troesken et al., DE 25 38 016 A1.

Reconsideration and withdrawal of the rejection of claims 22-24, 33 and 37 under 35 U.S.C. § 103(a) as being unpatentable over Troesken et al., DE 25 38 016 A1, is respectfully solicited in light of the remarks *supra*.

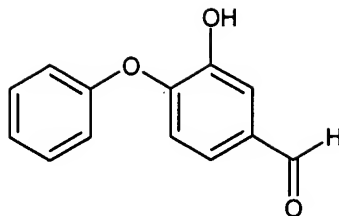
Claims 23-33, 35 and 37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Muntwyler et al. (U.S. Patent 4,268,693) in view of Silverman (The Organic Chemistry of Drug Design and Drug Action, 1992, pages 15-22, in particular Table 2.2 on page 19). However, the compounds disclosed in Muntwyler et al. all contain multiple halogens. Hence there are always multiple structural differences from the compounds according to the present invention.

Muntwyler et al. clearly *teach away* from halogen-free compounds. The examiner relies on Silverman's Table 2.2 for the teaching of certain alkyls as isosteres of F and Cl. Applicants aver that this is a weak "obvious to try" rejection and a completely inadequate basis for making multiple structural changes in the compounds of Muntwyler et al where polyhalogenation is required, particularly in the absence of any teaching at all in Silverman directed to hydroxydiphenyl ethers. While one might expect that substituting methyl for F and Cl would modify the microbial activity of the compounds disclosed in Muntwyler et al., the most reasonable expectation from the teachings of Muntwyler et al. is that it would destroy said activity!

Reconsideration and withdrawal of the rejection of claims 23-33 and 37 under 35 U.S.C. § 103(a) as being unpatentable over Muntwyler et al. (U.S. Patent 4,268,693) in view of Silverman is respectfully solicited in light of the remarks *supra*.

Claims 22, 23 and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujikawa et al. (abstract of Yakugaku Zasshi, Vol. 91, pp. 930-933, 1971). Fujikawa et al. teaches use of certain diphenyl ether compounds as preservatives for sake. The diphenyl ethers of Fujikawa et al. are not taught to be broad-spectrum general purpose antibiotics.

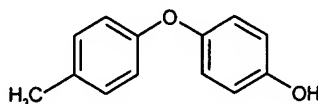
Fujikawa et al. disclose the compound



. There are multiple structural

differences between this compound and the present invention since claimed  $R_1$ - $R_4$  cannot be an aldehyde group and the phenolic hydroxyl must be in the m-position, not the o-position.

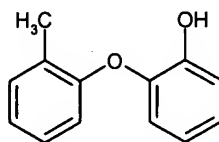
Fujikawa et al. also disclose the compound



. However, the phenolic

hydroxyl must be in the m-position, not the o-position in the present invention. Applicants note that Fujikawa's left phenyl moiety has a 4'-methyl radical, whereas in the instant invention of claims 23, 24 and 33 the relevant radical ( $R_2$ ) is hydrogen. This compound of Fujikawa et al. has 2 structural differences from the preferred inventive compounds and is therefore not suggestive of them.

Fujikawa et al. also disclose the compound



. However, the phenolic hydroxyl

must be in the m-position, not the o-position in the present invention. Since Fujikawa et al. is silent about diphenyl ethers wherein the phenolic hydroxyl is in the m-position, applicants aver that the subject matter of the present invention is unobvious over Fujikawa et al.

Claims 22-25, 27, 30-33 and 37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Leichtigen et al., U.S. Patent No. 3,753,914. However the examiner acknowledges that there are multiple structural differences from the claimed compounds even prior to the present amendment. Hence applicants aver that the subject matter of the present invention is unobvious over Leichtigen et al., U.S. Patent No. 3,753,914.

Claims 22-24, 28-29, 31, 33 and 37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jackson et al., U.S. Patent No. 4,980,153. The examiner asserts that Jackson et al. teach an oral hygiene composition which comprises an antimicrobial hydroxy diphenyl ether compound, but acknowledges that there are structural differences from the claimed compounds. Indeed Jackson has

a huge generic disclosure embracing an enormous genus of biphenyl compounds where the linking group can be O, S or C<sub>1</sub>-C<sub>6</sub>alkylene. Further, any of the 10 substituents can be hydrogen, hydroxyl or halogen, but not hydrocarbyl or O-hydrocarbyl. Hence, compounds of the formula (1) according to claims 23-24, 28-29, 31, 33 and 37 are completely outside the scope of even the enormous genus of biphenyl compounds suggested by Jackson et al.

With regard to compounds of the formula (1) according to claim 22, R<sub>1</sub>-R<sub>4</sub> can also be hydrogen. However, appellants aver that the likelihood of selecting such a claimed compound from the disclosure of the patent would be about the same as the likelihood of discovering the combination of a safe from the mere inspection of the dials thereof (*Ex parte Garvey*, 41 USPQ 583, PO Bd. of App.). Since the only 4 disclosed compounds of Jackson et al. (see col. 2, lines 4-10) contain one or two ortho phenolic hydroxyls and all contain **2-6** halogens, there are multiple structural differences from the present invention. This preferred subgenus excludes both halogen-free compounds and meta or para phenolic hydroxyls. It thus indicates a preference leading away from the claimed compounds. There is absolutely nothing in the reference that would have motivated one skilled in the art, considering both the generic and narrow disclosures of the reference, to select halogen-free compounds, much less to select meta phenolic OH compounds of formula (1) wherein R<sub>1</sub>-R<sub>4</sub> are all hydrogen.

It is well established that hindsight selection from a broad shotgun type disclosure would not guide one skilled in the art to choose appellant's restricted class of compounds from among the host of possible combinations so as to make said class obvious within the meaning of 35 U.S.C. § 103. See *Ex parte Strobel et al.*, 160 USPQ 352 (PTO Bd. of App., 1968), cited with approval numerous times by the CCPA and the CAFC.

Appellants also note *In re Jones*, 21 USPQ 2d 1941, 1943 (CAFC 1992), wherein the Court of Appeals for the Federal Circuit rejected the PTO Commissioner's argument that "regardless how broad, a disclosure of a chemical genus renders obvious any species that happens to fall within it". *Jones* involved an obviousness rejection of a claim to a specific compound, the 2-(2'-aminoethoxy) ethanol salt of 2-methoxy-3,6-dichlorobenzoic acid (dicamba), as obvious in view of, *inter alia*, a prior art reference disclosing a genus which admittedly encompassed the claimed salt. The CAFC reversed the Board's rejection, reasoning that the prior art reference encompassed a "potentially infinite genus" of salts of dicamba and listed several such salts, but that it did not disclose or suggest the claimed salt. Similarly, in *In re Baird*, 29 USPQ 2d 1550, 1552 (CAFC 1994), the court asserted

that, while the formula of the Knapp reference unquestionably encompassed bisphenol A when specific variables were chosen, there was nothing in the disclosure of Knapp suggesting that one should select such variables. "A disclosure of millions of compounds does not render obvious a claim to three compounds, particularly when that disclosure indicates a preference leading away from the claimed compounds". Quite clearly Jackson et al.'s disclosure indicates a preference leading away from any compounds according to the invention. Hence the subject matter as a whole of all of the rejected claims is unobvious over Jackson et al.

Reconsideration and withdrawal of the rejection of claims 22-24, 28-29, 31, 33 and 37 under 35 U.S.C. § 103(a) as being unpatentable over Jackson et al., U.S. Patent No. 4,980,153, is respectfully solicited in light of the remarks *supra*.

Since there are no other grounds of objection or rejection, passage of this application to issue with claims 22-33 and 37 is earnestly solicited.

Applicants submit that the present application is in condition for allowance. In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

Respectfully submitted,



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MAR 14 2005